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John S. Hale
GIPPLE & HALE
6665-A Old Dominion Drive
McLean, VA 22101

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Please find below and/or attached an Office communication concerning this application or proceeding.

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/670,531
Filing Date: September 26, 2003
Appellant(s): CASTLEBERRY, WAYNE

John S. Hale
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 4/1/09 appealing from the Office action mailed 7/14/08.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

3373009	Pruitt	3-1968
4469502	Heller et al.	9-1984

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-23,25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pruitt et al. (3373009) in view of Heller et al. (4469502).

For claim 1, Pruitt et al. teach a horticultural growing medium comprising: a flexible diisocyanate foam material without filler material (col. 8, lines 23-27, note that there is no filler listed such as peat, ground scrap foam, etc.) having a cation exchange capacity ranging from about 1.0 to about 1.5 (col. 4, lines 55-68 and table I in col. 5), said horticultural growing medium being capable of supporting plant growth. However, Pruitt et al. do not specifically state diphenylmethane diisocyanate as the preferred diisocyanate foam material.

Heller et al. teach in the same field of endeavor of horticultural growing medium as Pruitt et al., in which Heller et al. employ diphenylmethane diisocyanate material as the preferred foam material (col. 6, lines 42-68). It would have been obvious to one having ordinary skill in the art at the time the invention was made to select diphenylmethane diisocyanate as taught by Heller et al. as the preferred diisocyanate foam material in Pruitt et al.'s growing medium , since it has been held to be within the

general skill of a worker in the art to select a known material on the basis of its suitability for the intended use for high molecular weight and high functionality as a matter of obvious choice.

For claim 2, Pruitt et al. as modified by Heller et al. (emphasis on Pruitt et al.) further teach wherein said cation exchange capacity is about 1.25 (see Table I in col. 5 and explanation of cation exchange in col. 4, lines 55-68).

For claim 3, in addition to the above, Heller et al. further teach wherein said diphenylmethane diisocyanate foam material is taken from a group consisting of polymeric diphenylmethane diisocyanate, crude diphenylmethane diisocyanate, 4,4'-, 2,4'-, 2,2'-diphenylmethane diisocyanate (col. 6, lines 60-68). Thus, the combination of Pruitt et al. as modified by Heller et al. for the diphenylmethane diisocyanate foam material as stated above, teaches polymeric diphenylmethane diisocyanate, crude diphenylmethane diisocyanate, 4,4'-, 2,4'-, 2,2'-diphenylmethane diisocyanate, for the same reason as stated above, i.e. high molecular weight and high functionality of the material.

For claim 4, in addition to the above, Heller et al. further teach wherein said diphenylmethane diisocyanate foam material is polymeric diphenylmethane diisocyanate (col. 6, lines 60-68). Thus, the combination of Pruitt et al. as modified by Heller et al. for the diphenylmethane diisocyanate foam material as stated above, teaches polymeric diphenylmethane diisocyanate, for the same reason as stated above, i.e. high molecular weight and high functionality of the material.

For claim 5, in addition to the above, Heller et al. further teach wherein said diphenylmethane diisocyanate foam material is one or a mixture of 2,2'-, 2,4'- and 4,4'-diphenylmethane diisocyanate (MDI), polymeric MDI, crude MDI, namely, products of crude diaminodiphenyl methane or a mixture of the same (col. 6, lines 60-68). Thus, the combination of Pruitt et al. as modified by Heller et al. for the diphenylmethane diisocyanate foam material as stated above, teaches one or a mixture of 2,2'-, 2,4'- and 4,4'-diphenylmethane diisocyanate (MDI), polymeric MDI, crude MDI, namely, products of crude diaminodiphenyl methane or a mixture of the same, for the same reason as stated above, i.e. high molecular weight and high functionality of the material.

For claim 6, Pruitt et al. as modified by Heller et al. (emphasis on Pruitt et al.) further teach wherein said foam material has a neutral pH ranging from 6.8 to 7.8 (col. 7, lines 10-22).

For claim 7, Pruitt et al. as modified by Heller et al. (emphasis on Pruitt et al.) further teach wherein said foam material is highly porous (col. 3, lines 33-45) but are silent about the foam material maintains a 60 to 40 air to water ratio. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the foam material of Pruitt et al. as modified by Heller et al. be maintained with a 60 to 40 air to water ratio, depending on the amount of water and air needed by the plant grown therein, since it has been held that where routine testing and general experimental conditions are present, discovering the optimum or workable ranges until the desired effect is achieved involves only routine skill in the art.

For claim 8, Pruitt et al. as modified by Heller et al. are silent about wherein said foam material has at least 50% of its pores by foam volume ranging in size between 10 and 200 microns. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the foam material of Pruitt et al. as modified by Heller et al. with at least 50% of its pores by foam volume ranging in size between 10 and 200 microns, depending on the amount of air (air space for roots) needed by the plant grown therein, since it has been held that where routine testing and general experimental conditions are present, discovering the optimum or workable ranges until the desired effect is achieved involves only routine skill in the art.

For claim 9, Pruitt et al. as modified by Heller et al. are silent about wherein said foam material has about 50% of its pores by foam volume ranging in size from about 40 to about 90 microns. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the foam material of Pruitt et al. as modified by Heller et al. with about 50% of its pores by foam volume ranging in size from about 40 to about 90 microns, depending on the amount of air (air space for roots) needed by the plant grown therein, since it has been held that where routine testing and general experimental conditions are present, discovering the optimum or workable ranges until the desired effect is achieved involves only routine skill in the art.

For claim 10, Pruitt et al. as modified by Heller et al. are silent about wherein said foam material has pores ranging from 20% to about 25% by foam volume which range in size between about 0.2 microns to about 10 microns. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the foam

material of Pruitt et al. as modified by Heller et al. with pores ranging from 20% to about 25% by foam volume which range in size between about 0.2 microns to about 10 microns, depending on the amount of air (air space for roots) needed by the plant grown therein, since it has been held that where routine testing and general experimental conditions are present, discovering the optimum or workable ranges until the desired effect is achieved involves only routine skill in the art.

For claim 11, Pruitt et al. as modified by Heller et al. are silent about wherein said foam material has pores ranging from about 25% to about 35% by foam volume which range in size between about 300 microns to about 800 microns. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the foam material of Pruitt et al. as modified by Heller et al. with pores ranging from about 25% to about 35% by foam volume which range in size between about 300 microns to about 800 microns, depending on the amount of air (air space for roots) needed by the plant grown therein, since it has been held that where routine testing and general experimental conditions are present, discovering the optimum or workable ranges until the desired effect is achieved involves only routine skill in the art.

For claim 12, Pruitt et al. as modified by Heller et al. (emphasis on Pruitt et al.) further teach wherein said foam material is substantially sterile (col. 11, lines 70-75).

For claim 13, Pruitt et al. as modified by Heller et al. are silent about wherein said foam material has pores of about 30% by foam volume which range in size between about 300 microns to about 800 microns. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the foam material of

Pruitt et al. as modified by Heller et al. with pores of about 30% by foam volume which range in size between about 300 microns to about 800 microns, depending on the amount of air (air space for roots) needed by the plant grown therein, since it has been held that where routine testing and general experimental conditions are present, discovering the optimum or workable ranges until the desired effect is achieved involves only routine skill in the art.

For claim 14, Pruitt et al. as modified by Heller et al. are silent about wherein said foam material has a total porosity ranging from 85% to 95%. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the foam material of Pruitt et al. as modified by Heller et al. with a total porosity ranging from 85% to 95%, depending on the amount of air (air space for roots) needed by the plant grown therein, since it has been held that where routine testing and general experimental conditions are present, discovering the optimum or workable ranges until the desired effect is achieved involves only routine skill in the art.

For claim 15, Pruitt et al. as modified by Heller et al. are silent about wherein said foam material has a total porosity of about 90% to 92%. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the foam material of Pruitt et al. as modified by Heller et al. with a total porosity of about 90% to 92%, depending on the amount of air (air space for roots) needed by the plant grown therein, since it has been held that where routine testing and general experimental conditions are present, discovering the optimum or workable ranges until the desired effect is achieved involves only routine skill in the art.

For claims 16-20,25-26, the limitations have been explained in the above, thus, please see the above.

For claims 21 & 22, Pruitt et al. as modified by Heller et al. are silent about wherein said foam material is a sheet with seeds secured thereto or a shaped block with an aperture cut therein. Seed mats made out of foam material with seeds secured thereto and seed blocks are notoriously well known in the art, thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the foam material of Pruitt et al. as modified by Heller et al. be made into a sheet with seeds secured thereto or a shaped block with an aperture cut therein, since applying a known technique (having foam be made sheet-like to carry seeds or a shaped block with an aperture cut therein) to a known device (foam material used in horticulture growth medium as taught in Pruitt et al. as modified by Heller et al.) would have yielded predictable results and resulted in an improved system (improved system which allows a user diversity of having the foam material be sheet-like to carry seeds thereon or a shaped block with an aperture cut therein). KSR International Co. v. Teleflex Inc., 127 S. Ct. 1727, 1739, 1740, 82 USPQ2d 1385, 1395, 1396 (2007).

For claim 23, Pruitt et al. as modified by Heller et al. (emphasis on Pruitt et al.) further teach wherein said cation exchange capacity is about 1.0 (see Table I in col. 5 and explanation in col. 4, lines 55-68).

(10) Response to Argument

(A) The Examiner's rejection of Claims 1-23, and 25-26 under 35 USC 103(a) as unpatentable over Pruitt '009 in view of Heiler '502 is incorrect and should be reversed.

Appellant argued that previously known growth media utilizing foam also require fillers, as for example soil, perlite, vermiculite, limestone, and the like, and therefore are subject to the risks discussed above. The instant invention does not contain filler materials and is sterile. It therefore solves a pressing need for a safe means of conducting international commerce.

It is really questionable if Appellant's invention does not contain filler because according to paragraph [0039] of Appellant's pgpub 2005/0076564, Appellant states that fertilizer and water are mixed and then poured into the foam material. Wouldn't this "fill" the foam? In addition, Appellant talks about the foam not having any filler(s); however, Appellant never specified in his specification what these fillers are. The only place that talks about fillers is paragraph [0009] of Appellant's pgpub 2005/0076564; however, this paragraph discusses about the prior art filler material, and thus, it is uncertain if it pertains to Appellant's invention. Fillers (as claimed broadly as Appellant did) is not a well known art term to mean just earth, sand, peat moss, etc. Based on Appellant specification, it appears that fillers are any material that fill the foam material, hence, the question goes back to the fertilizer and water as stated in paragraph [0009] being filler to the foam.

Appellant argued that as noted by the Examiner and is clear from a review of the Pruitt '009 patent, the Pruitt reference does not teach or mention the use of foam material diphenylmethane diisocyanate. Notwithstanding the Examiner's assertion that Pruitt '009 does not contain a filler material because "no filler [is] listed such as peat, ground scrap foam, etc." (Examiner's July 14, 2008 Office Action, pg 2) conveniently ignoring the following Examples listed in the Pruitt '009 patent.

First, the claim language appears to indicate that only the foam material is without fillers and not the growing medium as a whole because evidence lies in paragraph [0009] that Appellant does add fertilizer and water to the foam. Given that, Pruitt's foam material, itself, does not have any fillers; it is the whole growing medium that has additives and not within the foam itself. Second, those so-called fillers of Pruitt as alleged by Appellant are not mandatory in the ingredients to make the growing material of Pruitt because they are optional (see col. 11,lines 57-60, where Pruitt states "may be"). Lastly, not all of Pruitt's examples have filler material because, for example, examples 8 & 13 do not have any fillers (given fillers are as stated by Appellant in [0009]). The ingredients in examples 8 & 13 appears to be strictly foam material to create the foam matrix.

Note that the Examiner did not relied on Pruitt for a teaching of foam material of the type diphenylmethane diisocyanate. This foam type is taught by Heller and is well known foam material. Thus, one of ordinary skill in the art would select a known material

on the basis of its suitability for the intended use for high molecular weight and high functionality as a matter of obvious choice.

Appellant argued that Pruitt '009 in fact requires filler material in order to be operative. Column 8, lines 35 through 42 of Pruitt state in part, "the preferred method of preparing a nutrient charged foam matrix according to the present invention is the method known the polyurethane art as the "one shot technique wherein polyester resin ... [a] nutrient mixture, moisture retainer or other additaments ... are mixed together to produce a polyurethane foam matrix containing leach resistant nutrients (emphasis added).

Looking at col.8,lines 35-42 of Pruitt, the Examiner could not find anywhere that states that Pruitt requires filler material. It is believed that Appellant interpreted something that is not taught by Pruitt because Pruitt never requires to use fillers. If fillers are considered additives such as nutrients, Pruitt clearly states that the growing medium "may be added" and not required (see col. 4,lines 50-51,col. 10,lines 56-66-70,col. 11, lines 57-65). In addition, the excerpt provided by Appellant does not state “required”, instead, it clearly states one method or a preferred method, and not a required method. Note that col. 10,lines 66-70 of Pruitt is another proof that Pruitt does not required a filler because he clearly stated that the growing medium or composition may be varied. Thus, "may be varied" does not equate to "required".

Appellant argued that the art would know that the "nutrient mixture" disclosed in the '009 patent is in fact a filler material and Pruitt '009 is inoperative without same. Pruitt '009 states that "'artificial'" "non-soil media for growing

plants" are "notable for their failure" (col. 1 ln 41-43). In light of this past experience, it was an unexpected and unpredictable result that diphenylmethane diisocyanate foam by itself would produce a viable unfilled growth media. Furthermore as noted by the Examiner, Pruitt "009 does not state the use ofdiphenylmethane diisocyanate.

The art would not know that the nutrient mixture is a filler because nutrient mixture is no different from fertilizer and water added to the foam. Thus, it is unclear how the art would know that the nutrient mixture is a filler, then, wouldn't the art would also know that fertilizer and water added to the foam material as employed by Appellant is also a filler too? Fertilizer is not much different from nutrient because both enhance growth of the plant. In addition, the claim language does not indicate that growing medium, as a whole, does not contained a filler. Instead, the claim only states that the foam material is without filler material, to which the foam material of Pruitt does not include any filler material. It is only the product as a whole (i.e. the growing medium), that includes the nutrient mixture added to the foam material.

Again, the Examiner did not relied on Pruitt for a teaching of foam material of the type diphenylmethane diisocyanate. This foam type is taught by Heller and is well known foam material. Thus, one of ordinary skill in the art would select a known material on the basis of its suitability for the intended use for high molecular weight and high functionality as a matter of obvious choice.

Appellant argued that Heller '502 requires "mineral fertilizers embedded in polyurethanes" (col 1 ln 10-11). Heller '502 is essentially, a long acting fertilizer

comprising a foam coating encapsulating nutrients that are slowly released over time ("[c]oating ... fertilizers with ... polyurethanes", col 5 ln 3-5). As such, a critical component of the mineral fertilizer composition is a high C.E.C. that ensures binding of the nutrients thereto due to their highly ionic character. The Heller '502 "invention ... relates to a process for supplying plants with nutrients uniformly and over a long period of time by the addition of nutrient-charged synthetic resin ion exchangers and mineral fertilizers" (col 3 ln 63-66).

Heller was relied on for diphenylmethane diisocyanate foam material and nothing more. One of ordinary skill in the art would select a known material on the basis of its suitability for the intended use for high molecular weight and high functionality as a matter of obvious choice. Appellant is attempting to argue something that the Examiner did not even relied on in the rejection. Even if Heller teaches fertilizers in the foam, it is no different from Appellant adding fertilizer and water to the foam, both would be considered fillers.

Appellant argued that neither of the cited references teaches the use of an unfilled sterile foam material with a C.E.C. ranging from 1.0 to 1.5, nor a sterile foam material which has been previously noted as a necessary requirement when shipping plants internationally.

The unfilled foam argument is as replied in the above. As for the C.E.C. ranging from 1.0 to 1.5, clearly Pruitt's table I and col. 4 teach this range as argued by Appellant. In addition, Pruitt's foam material is also sterile, similar to Appellant, (see col.

11,lines 70-75); hence, Appellant really has not invented a new or unexpected result because Pruitt's foam is also sterile and good for shipping.

Appellant argued that neither of cited references has optimum pore sizes and porosity for fluid transfer to the plant, or 60 to 40 air to water ratio, or a pore size of over 80%. It is not obvious how to obtain air water ratios without the use of fillers. Furthermore, as known by those skilled in the art, when one puts additives in foam, pore size is exceptionally difficult to control. Thus pore size is not inherent.

Clearly from Pruitt, he discussed porosity in his foam to accommodate root growth (col. 3, lines 20-46). Pruitt preferred an open-celled foam structure, thus, air to water or pore size is important in Pruitt's foam for root growth. As for specific amount or size of pore, Pruitt does not state. However, the Examiner believes that through general experimental condition, such as the plant type being grown in the foam, it would be obvious for one of ordinary skill to have various ranges of air/water ratio or pore sizes, depending on the plant's root formation. This has to be done by routine testing and experimentation of different plant types to derive at a range to meet general plant type being grown in the foam. These ranges as claimed by Applicant are merely preferable ranges based on experimentation done to come up with these ranges for the desired plant type. Note that Appellant adds fertilizer and water to the foam, thus, would affect the pore size as argued also.

Appellant argued that in cases which are similar to the present circumstances, the courts have ruled that beyond looking at the prior art to

determine if it suggests doing what the inventor has done, one must consider if the prior art provides an expectation of succeeding in the endeavor. Hence, neither Pruitt or Heller suggests doing what the inventor has done to provide an expectation of succeeding the endeavor.

The succeeding endeavor of Appellant appears to be creating a growing medium that is sterile and easy to ship. This is exactly what Pruitt is trying to achieve also (see col. 11,lines 70-75). The inventor has not done anything different from that of Pruitt because, as mentioned above, Pruitt does not include fillers in the foam material. Even if considered that Pruitt includes nutrient mix with the foam material, this is no different from Appellant's fertilizer and water mix with the foam material. It appears that both Pruitt and Appellant end result is to create a growing medium that is sterile and easy to ship; hence, Appellant's invention is not really unexpected success.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Son T. Nguyen/
Primary Examiner, Art Unit 3643

Conferees:

Marc Jimenez /MJ/

Robert Swiatek /rps/